

### The Sixth Congress of Russian Physicists.

THE Russian Physical Society usually meets in one of the larger university towns, but this year a new departure was made, and in order to visit some of the more remote universities the congress became itinerant, in much the same way as is done by the British Association when it visits the Dominions. A number of foreign physicists were invited to become the guests of the society, and those who were fortunate enough to be able to do so were treated with the most generous hospitality. We have undoubtedly had as interesting a journey as we are ever likely to make.

The meeting began on Aug. 5 in Moscow under the presidency of Prof. Ioffe, of Leningrad. Here most of the papers were read, but there was no time for the Russian papers to be translated, and so those of the visitors who could not understand the language had plenty of opportunity for seeing the sights. Apart from the monuments and museums, we were shown a number of scientific institutions, among them the Biophysical Institute of Prof. Lazarev, where experiments over a most unusually wide field are being carried on. From Moscow we went to Nijni-Novgorod, where the great fair was in progress, though rather fallen from its former importance, and after a day there, including a meeting at the University, we took ship on the Volga. A special boat had been chartered, and this provided a great opportunity for the informal discussion of physical questions. It also made it possible to stop at any places of interest on the river, or when the weather turned hot to see the beautiful sight of two hundred physicists simultaneously enjoying a bath.

We were most hospitably entertained by the University at Kazan, a beautiful city and the capital of the Tartar Republic, and we shall always think of Kazan as the culminating point of the whole tour. From there we moved on to Saratov, where the closing session was held on Aug. 15. Though this was the formal end of the congress, a continuation had been arranged in which many of the Russians and nearly all the visitors took part. We went on down the

Volga to Stalingrad (formerly Tsaritsin) and then took train across the steppes to the Caucasus. From Vladikavkas we were carried in motors over the wonderful Georgian Road to Tiflis, where we were again entertained by the University. There the party broke up, most returning by various ways to Moscow, but a few of us found a ship going from Batum to Constantinople, and so returned by the Mediterranean.

For one who knows no Russian it is not possible to give a detailed account of the subjects of the papers, but physics certainly appear to be in a flourishing condition in Russia. Perhaps the most interesting work is that of Prof. Ioffe on the reflection of electrons—including an unsuccessful attempt to detect polarisation—and that of Profs. Mandelstamm and Landsberger. The latter described how they had independently discovered Raman's phenomenon, the scattering of light with changed frequency. This was predicted some years ago by the dispersion theory of Kramers (and still earlier by Smekal), and the verification is made by scattering the light from a solid or liquid and observing the change of frequency. This change is a measure of the wave-lengths of the infra-red absorption of the scattering material, and so, apart from its direct interest, the phenomenon promises to be important for the spectroscopy of solids. In addition to the Russian papers, lectures were given by the visitors on various subjects; among them may be mentioned Prof. Ladenburg's verification of the 'negative dispersion,' also predicted by Kramers (see NATURE, Sept. 22, p. 438).

The general condition of Russian scientific workers seems to be more favourable than it was reported to be a few years ago. Their labours are very directly encouraged under the present regime, and, apart from the general impoverishment of the country, their chief hardship appears to be a sense of isolation due to the great difficulty they have in visiting other countries. Their guests will certainly all try to mitigate this difficulty in return for such a delightful tour.

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### Research in Aeronautics.<sup>1</sup>

THE keynote of the policy of the Aeronautical Research Committee during the year 1927-28 appears to have been a recognition of the importance of close co-operation with the aircraft industry and the Services on one hand, coupled, on the other hand, with a consistently scientific attitude to test and research in the problems associated with these two branches. The numerous advances recorded and the high quality of the experimental work are a full justification of this policy.

The general progress in Great Britain resulting from research is exemplified in the performance of the British seaplanes competing for the Schneider Trophy. The immediate results are of course attributable to the designers of the machines and engineers, and to the splendid piloting by the R.A.F. officers, but a great deal of preliminary ground work was covered by close co-operation between the individual designers and the trained research staff at the National Physical Laboratory. Several models of each racing type were tested in the duplex tunnel at the N.P.L. in the endeavour to obtain results at the highest possible Reynolds' number, that is, as close to full scale con-

ditions as possible, and the conclusions arrived at, after consultations between the designers and the N.P.L. staff, led to definite improvements. The Committee quite rightly stresses the importance of close co-operation between the designer and the actual research worker, as a vital factor in progress of this nature.

The part played by joint action of a similar kind is exemplified by the development of mechanisms for avoidance of control failure during stalling. The Committee has now spent some considerable time in a close study of the forces operating during the stall, and of the actual motion of the aeroplane in that condition, in the hope of preventing the serious type of accident which frequently follows an inadvertent stall. This hope has been fulfilled, and out of the original slot system there have developed several methods for reducing this danger. In particular, the use of a slot which automatically closes at low wing incidences, and so avoids the loss of performance due to an open slot, has greatly assisted this development. Meanwhile, various methods of using slots at the wing tips are being extensively tried in the Services and upon civil aeroplanes.

Valuable work is also recorded on the problem of wing flutter; the aerodynamic and structural factors

<sup>1</sup> Aeronautical Research Committee. Report for the Year 1927-28. Pp. 63. (London: H.M. Stationery Office, 1928.) 2s. net.